

**CLAIMS**

What is claimed is:

- 1           1.       A digital image capture and processing system, comprising:  
2           a lens coupled to a lens control element;  
3           an image sensor configured to capture images from the lens; and  
4           a memory element and a processor coupled to the lens control element, the  
5       memory element including image capture software, where the image capture software  
6       cause the lens and the image sensor to capture at least two images, each of the at least  
7       two images captured using a varying parameter and stored as a single file, where the at  
8       least two images are combined to form a new image having at least one characteristic  
9       different from corresponding characteristics of the at least two images.
- 1           2.       The system of claim 1, wherein the varying parameter is focus distance.
- 1           3.       The system of claim 2, further comprising a user interface associated  
2       with the image capture software, where the user interface allows the user of the device  
3       to scroll through the at least two images and select one of the images as the new  
4       image.
- 1           4.       The system of claim 2, further comprising a user interface associated  
2       with the image capture software, where the user interface allows the user to combine  
3       attributes of the at least two images to form the new image.

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1           9.     The system of claim 6, further comprising a distance indicator assigned  
2     to each of the regions, the distance indicator configured to assign a distance  
3     measurement to an alpha channel for each region.

1           10.    The system of claim 9, wherein the user interface further comprises a  
2     lens shift and an image plane tilt adjustment.

1           11.    The system of claim 1, wherein a first of the at least two images is  
2     captured using conventional photography and a second of the at least two images is  
3     captured using infrared photography.

1           12.    The system of claim 1, wherein the varying parameter is the number of  
2     bits used by each pixel in the image sensor.

1           13.    A method for operating a digital image capture and processing device,  
2     the method comprising the steps of:  
3         coupling a lens to a lens control element;  
4         coupling an image sensor to the lens;  
5         capturing at least two images, each of the at least two images captured using a  
6     varying parameter, where the at least two images are combined to form a new image  
7     having at least one characteristic different from corresponding characteristics of the at  
8     least two images; and  
9         storing the at least two images as a single file.

1           14.    The method of claim 13, wherein the varying parameter is focus  
2    distance.

1           15.    The method of claim 14, further comprising the steps of:  
2           scrolling through the at least two images; and  
3           selecting one of the images as the new image.

1           16.    The method of claim 14, further comprising the step of combining  
2    attributes of the at least two images to form the new image.

1           17.    The method of claim 16, further comprising the step of blending each of  
2    the at least two images into the new image that includes an apparent focus between the  
3    focus distance of each of the at least two images.

1           18.    The method of claim 17, further comprising the steps of:  
2           indicating the position of the lens for each of the at least two images;  
3           dividing each of the at least two images into a plurality of regions;  
4           analyzing each of the regions to determine whether each of the plurality of  
5    regions are in focus; and  
6           assembling each of the in-focus regions into the new image.

1           19.    The method of claim 18, further comprising the steps of:  
2           assigning a depth of field indicator to each of the at least two images; and  
3           determining a depth of field for each of the at least two images.

1           20.     The method of claim 19, further comprising the step of using a depth of  
2     field adjustment to select the depth of field of the new image from the depth of field of  
3     each of the at least two images.

1           21.     The method of claim 18, further comprising the step of assigning a  
2     distance indicator to each of the regions, the distance indicator configured to assign a  
3     distance measurement to an alpha channel for each region.

1           22.     The method of claim 21, further comprising the step of adjusting lens  
2     shift and image plane tilt.

1           23.     The method of claim 13, further comprising the steps of:  
2     capturing a first of the at least two images using conventional photography; and  
3     capturing a second of the at least two images using infrared photography.

1           24.     The method of claim 13, further comprising the step of varying the  
2     number of bits used by each pixel in the image sensor.

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1           25.     An image processing system, comprising:  
2           an image storage device;  
3           at least two similar images contained in the image storage device;  
4           a processor coupled to the image storage device;  
5           a code segment for processing the at least two similar images, where the at  
6     least two similar images are combined to form a new image having at least one  
7     characteristic different from corresponding characteristics of the at least two images;  
8     and  
9           an output element for rendering the new image.

1           26.     The system of claim 25, wherein the image processing system is  
2     contained within an image capture device such that the at least two similar images are  
3     captured by the image capture device and placed in the image storage device.

1           27.     The system of claim 26, where the image processing system instructs  
2     the image capture device to vary at least one parameter of the image capture device so  
3     that the at least two similar images differ due to the variance of the at least one  
4     parameter.

1           28.     The system of claim 26, wherein the image storage device for one of the  
2     at least two similar images is the image sensor of the image capture device.

1           29.     The system of claim 25, wherein the at least one characteristic is  
2     different depth of field.

1           30.     The system of claim 25, wherein the at least one characteristic is  
2     different exposure.

1           31.     The system of claim 27, wherein the at least one parameter is image  
2     illumination.

1           32.     The system of claim 25, wherein the at least two similar images differ  
2     primarily in focus.

1           33.     The system of claim 25, where the at least two similar images differ  
2     primarily in color.

1           34.     The system of claim 25, wherein a first of the at least two similar  
2     images is captured using visible light and the second of the at least two similar images  
3     is captured using infrared exposure.